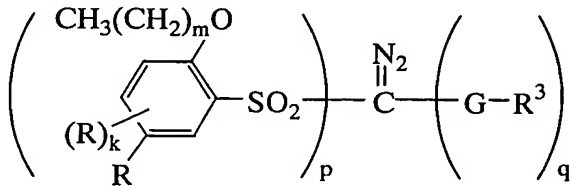
CLAIMS:

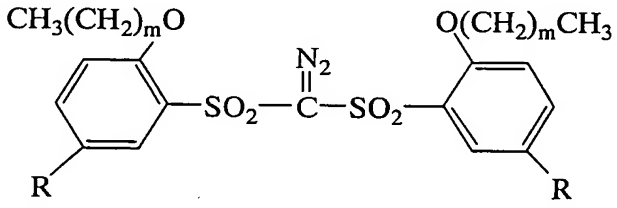
1. A sulfonyldiazomethane compound having the following general formula (1):



(1)

wherein R is each independently a substituted or unsubstituted straight, branched or cyclic alkyl group of 1 to 4 carbon atoms, G is SO_2 or CO, R^3 is a substituted or unsubstituted straight, branched or cyclic alkyl group of 1 to 10 carbon atoms or a substituted or unsubstituted aryl group of 6 to 14 carbon atoms, p is 1 or 2, q is 0 or 1, satisfying p+q = 2, m is an integer of 3 to 11, and k is an integer of 0 to 4, with the proviso that in the event k is at least 1, at least one of R associated with k may bond with the R at the 4-position to form a cyclic structure with the carbon atoms on the benzene ring to which these R's are attached, and then, these two R's bond together to form an alkylene group of 3 to 4 carbon atoms.

2. A sulfonyldiazomethane compound having the following general formula (1a):



(1a)

wherein R is each independently a substituted or unsubstituted straight, branched or cyclic alkyl group of 1 to 4 carbon atoms, and m is an integer of 3 to 11.

3. A photoacid generator for a chemical amplification type resist composition comprising the sulfonyldiazomethane compound of claim 1.

4. A chemical amplification type resist composition comprising

(A) a resin which changes its solubility in an alkaline developer under the action of an acid, and

(B) the sulfonyldiazomethane compound of claim 1 which generates an acid upon exposure to radiation.

5. A chemical amplification type resist composition comprising

(A) a resin which changes its solubility in an alkaline developer under the action of an acid,

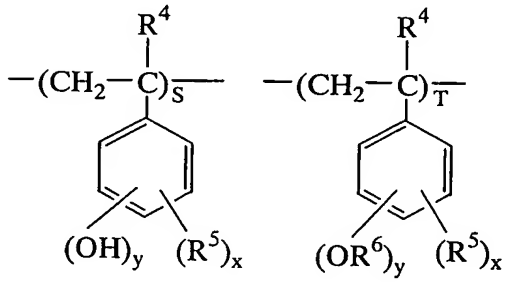
(B) the sulfonyldiazomethane compound of claim 1 which generates an acid upon exposure to radiation, and

(C) a compound capable of generating an acid upon exposure to radiation, other than component (B).

6. The resist composition of claim 4 wherein the resin (A) has such substituent groups having C-O-C linkages that the solubility in an alkaline developer changes as a result of scission of the C-O-C linkages under the action of an acid.

7. The resist composition of claim 6 wherein the resin (A) is a polymer containing phenolic hydroxyl groups in which hydrogen atoms of the phenolic hydroxyl groups are substituted with acid labile groups of one or more types in a proportion of more than 0 mol% to 80 mol% on the average of the entire hydrogen atoms of the phenolic hydroxyl groups, the polymer having a weight average molecular weight of 3,000 to 100,000.

8. The resist composition of claim 7 wherein the resin (A) is a polymer comprising recurring units of the following general formula (2a):

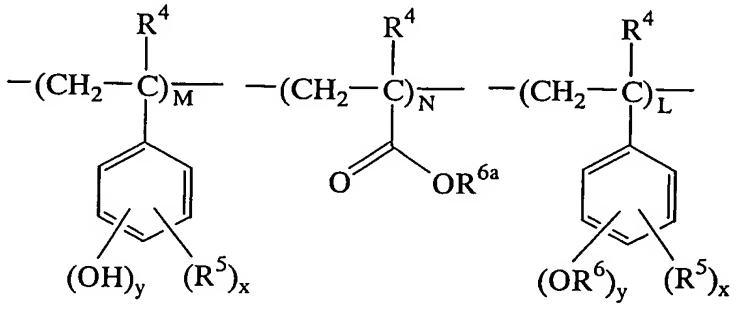


(2a)

wherein R^4 is hydrogen or methyl, R^5 is a straight, branched or cyclic alkyl group of 1 to 8 carbon atoms, x is 0 or a positive integer, y is a positive integer, satisfying $x+y \leq 5$, R^6 is an acid labile group, S and T are positive integers, satisfying $0 < T/(S+T) \leq 0.8$,

wherein the polymer contains units in which hydrogen atoms of phenolic hydroxyl groups are partially substituted with acid labile groups of one or more types, a proportion of the acid labile group-bearing units is on the average from more than 0 mol% to 80 mol% based on the entire polymer, and the polymer has a weight average molecular weight of 3,000 to 100,000.

9. The resist composition of claim 6 wherein the resin (A) is a polymer comprising recurring units of the following general formula (2a'):

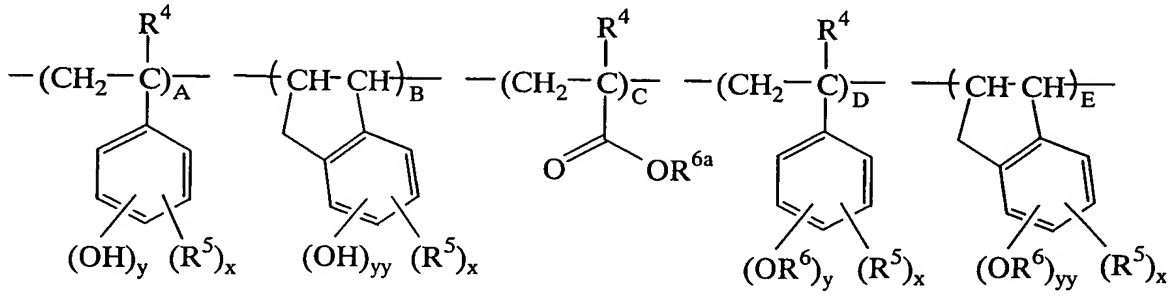


(2a')

wherein R^4 is hydrogen or methyl, R^5 is a straight, branched or cyclic alkyl group of 1 to 8 carbon atoms, R^6 is an acid labile group, R^{6a} is hydrogen or an acid labile group, at least some of R^{6a} being acid labile groups, x is 0 or a positive integer, y is a positive integer, satisfying $x+y \leq 5$, M and N are positive integers, L is 0 or a positive integer, satisfying $0 < N/(M+N+L) \leq 0.5$ and $0 < (N+L)/(M+N+L) \leq 0.8$,

wherein the polymer contains on the average from more than 0 mol% to 50 mol% of those units derived from acrylate and methacrylate, and also contains on the average from more than 0 mol% to 80 mol% of acid labile group-bearing units, based on the entire polymer, and the polymer has a weight average molecular weight of 3,000 to 100,000.

10. The resist composition of claim 6 wherein the resin (A) is a polymer comprising recurring units of the following general formula (2a"):

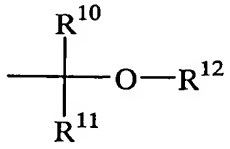


(2a")

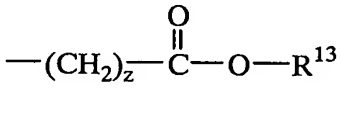
wherein R^4 is hydrogen or methyl, R^5 is a straight, branched or cyclic alkyl group of 1 to 8 carbon atoms, R^6 is an acid labile group, R^{6a} is hydrogen or an acid labile group, at least some of R^{6a} being acid labile groups, x is 0 or a positive integer, y is a positive integer, satisfying $x+y \leq 5$, yy is 0 or a positive integer, satisfying $x+yy \leq 5$, A and B are positive integers, C, D and E each are 0 or a positive integer, satisfying $0 < (B+E)/(A+B+C+D+E) \leq 0.5$ and $0 < (C+D+E)/(A+B+C+D+E) \leq 0.8$,

wherein the polymer contains on the average from more than 0 mol% to 50 mol% of those units derived from indene and/or substituted indene, and also contains on the average from more than 0 mol% to 80 mol% of acid labile group-bearing units, based on the entire polymer, and the polymer has a weight average molecular weight of 3,000 to 100,000.

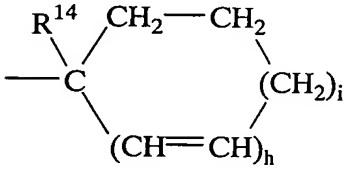
11. The resist composition of claim 7 wherein the acid labile group is selected from the class consisting of groups of the following general formulae (4) to (7), tertiary alkyl groups of 4 to 20 carbon atoms, trialkylsilyl groups whose alkyl moieties each have 1 to 6 carbon atoms, oxoalkyl groups of 4 to 20 carbon atoms, and aryl-substituted alkyl groups of 7 to 20 carbon atoms,



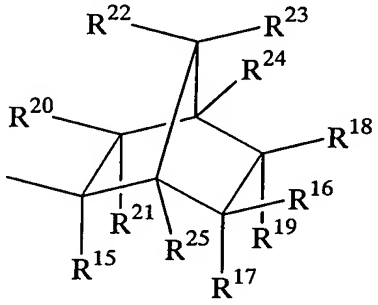
(4)



(5)



(6)



(7)

wherein R^{10} and R^{11} each are hydrogen or a straight, branched or cyclic alkyl having 1 to 18 carbon atoms, and R^{12} is a monovalent hydrocarbon group of 1 to 18 carbon atoms which may contain a heteroatom, a pair of R^{10} and R^{11}, R^{10} and R^{12}, or R^{11} and R^{12} may together form a ring, with the proviso that R^{10}, R^{11}, and R^{12} each are a straight or branched alkylene of 1 to 18 carbon atoms when they form a ring,

R^{13} is a tertiary alkyl group of 4 to 20 carbon atoms, a trialkysilyl group in which each of the alkyls has 1 to 6 carbon atoms, an oxoalkyl group of 4 to 20 carbon atoms, or a group of the formula (4), z is an integer of 0 to 6,

R^{14} is a straight, branched or cyclic alkyl group of 1 to 8 carbon atoms or an aryl group of 6 to 20 carbon atoms which may be substituted, h is 0 or 1, i is 0, 1, 2 or 3, satisfying 2h+i = 2 or 3,

R^{15} is a straight, branched or cyclic alkyl group of 1 to 8 carbon atoms or an aryl group of 6 to 20 carbon atoms which may be substituted, R^{16} to R^{25} are each independently hydrogen or a monovalent hydrocarbon group of 1 to 15 carbon atoms which may contain a heteroatom, any two of R^{16} to R^{25}, taken together, may form a ring, each of the ring-forming two of R^{16} to R^{25} is a divalent hydrocarbon group of 1 to 15 carbon atoms which may contain a heteroatom, or two of R^{16} to R^{25} which are attached to adjoining carbon atoms may bond together directly to form a double bond.

12. The resist composition of claim 4 further comprising (D) a basic compound.

13. The resist composition of claim 4 further comprising (E) an organic acid derivative.

14. The resist composition of claim 4 further comprising as an organic solvent a propylene glycol alkyl ether acetate, an alkyl lactate or a mixture thereof.

15. A process for forming a pattern, comprising the steps of:

applying the resist composition of claim 4 onto a substrate to form a coating,

heat treating the coating and exposing the coating to high energy radiation with a wavelength of up to 300 nm or electron beam through a photomask,

optionally heat treating the exposed coating, and developing the coating with a developer.